

Patent Application  
Attorney Docket No. ~~D/97068~~

#3146-US-NP

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor(s): **Steven J. Fiore et al.**

Application No.: 10/672,860

Filed: 09/26/2003

Examiner: Q. Grainger

Art Unit: 2852

**Title: A Rotating Flicker Bar for Cleaning a  
Rotating Cleaner Roll and for Transmitting  
Power to the Cleaner Roll**

Commissioner for Patents

Washington, D.C. 22313-1450

Sir:

**DECLARATION**

I, **Steven J. Fiore**, hereby declare that

1. I have received an Associate of Applied Sciences degree from Monroe Community College in 1976.

2. I was employed by Xerox Corporation as a High School and College Co-op for over 3½ years and I have been continuously employed by Xerox Corporation for the past 27½ years where I have been engaged in research and engineering activities relating to copier/printer designs, and more specifically, the design and operation of Mechanical/Xerographic Sub Systems. I am familiar with most if not all of the cleaning systems previously employed in printer/copier systems designed by Xerox Corporation and am familiar with most cleaning systems used by competitors.

3. I have reviewed the prior art being applied by the Examiner, including US-A-5,597,419 issued to Gerbasi, et al

4. I understand that the First Office Action asserted that that although Gerbasi fails to teach drive coupling of the brush and the flicker bar, "it is well known in the art to drive one member with another." I disagree. As one of the research engineers who designed the back of the belt cleaning brush with flicker bar system, I was aware of prior practices within Xerox and within the printer/copier/output device industry. For reasons explained below, flicker bars and cleaning brushes have until now NOT been drive coupled. The innovative drive coupling that we claim was inspired, in part, by the great space constraints created by attempting to place a cleaning brush and a flicker bar in the narrow spaces available in the inside of an endless loop imaging belt, as well as an opportunity to increase the life of the flicker bar and limit the cost by having the flicker bar have a second function.

5. More specifically, in many cases where a flicker bar is used, the geometry of the flicker bar doesn't lend itself to be rotated or the mounting of the flicker bar doesn't lend itself to be rotated. Also, conventional flicker bars don't need to be rotated. In order to drive couple the brush and bar, the bar needs rotational mounting and gears or other drive mechanism to provide rotational power. Each of these features adds costs. Since conventional flicker bars have not needed rotation, there has been no need or desire to add the cost required by rotational mounting and by drive coupling.

6. Use of the flicker bar as a drive member to drive the brush was novel. As explained in paragraph [0021] of the Application, the back of the belt cleaning brush of the present invention rotates at a velocity approximately an order of magnitude less than that of a normal primary

brush cleaning systems on the front of the belt. Our desire to minimize cost drove us to use a relatively inexpensive motor on the back-of-the-belt cleaner system. Such inexpensive motors rotate at relatively high RPM rates such as about 1800 RPM. We desired that the brush rotate at only about 30 RPM in order to minimize any vibrational effects. This 60:1 reduction required that multiple gear reductions (actually 3) occur rather than a single reduction, which would have been possible with conventional brushes rotating at much higher speeds. Since space was very limited, one way of conserving space was to place one gear reduction set on the opposite side of the belt path from the motor coupled with the other 2 gear reduction sets. I believe that it was novel to use the flicker bar as a drive shaft to transfer power across the belt path width and to drive the brush from its end away from the motor. The added benefit of using the flicker bar as a drive shaft coupled to the brush is that a separate mechanism to rotate the flicker bar became unnecessary.

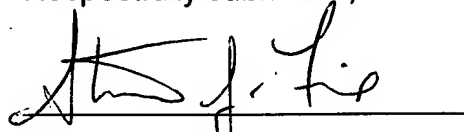
7. On other cleaning systems where a stationary flicker bar is used, the bar needs to be replaced at regular intervals because the repeated impacts of the brush fibers against the bar lead to wear of the bar and to less effective cleaning. By rotating the bar, all surfaces of the bar are now subjected to the fiber impacts and the bar will wear more evenly. By rotating the bar, the bar itself will last the projected life of the product. I do not expect that the flicker bar will have to be replaced.

I, the undersigned further declare that all statements made herein of my own knowledge are true and that all statements made on information and beliefs are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under

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Section 1001 of Title 18 of the United States Code, and further such willful statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Steven J. Fiore", written over a horizontal line.

Steven J. Fiore

25 OCT 04

Date